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EXAMINER

PATEL, VISHAL A

ART UNIT PAPER NUMBER

3626

DATE MAILED: 12/05/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/369,134

Applicant(s)

TARLTON, ORAN D.

Examiner

Vishal Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 09 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The final action dated 4/23/01 has been withdrawn and a new non-final action is presented below for all the claims in the application.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hensley et al (US. 4,878,678).

Hensley discloses a composite metal seal (10') comprising a core of relatively hard metal (60) and at least one annular region of relatively soft metal (70) that is integrally bonded with the core of relatively hard metal and that provides an annular sealing surface for effecting a fluid pressure seal;

the annular region of relatively soft metal has a thickness in the radial direction of at least one-eighth of an inch (70 has at least one-eighth of an inch thickness in the radial direction);

the core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the annular region of relatively soft metal;

Regarding claims 8-10;

Hensley discloses a composite metal seal (10) for effecting a fluid pressure seal with respective annular surface of first and second hub members (first annular hub being 50 and the second hub being the member 24, both have annular surface that contact the seal 10), the composite seal ring

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comprising an annular core of relatively soft metal integrally bonded to the annular core of relatively soft metal and a second annular region of relatively soft metal integrally bonded to the annular core of relatively hard metal, the first annular region of relatively soft metal having a first annular surface for mating with the annular surface of the first hub member to effect a fluid pressure seal with the first hub member and the second annular region of relatively soft metal having a second annular surface for mating with the annular surface of the second hub member to effect a fluid pressure seal with the second hub member (one of 70 contacting bottom surface of 50 and the other of 70 contacting surface 34' of member 22);

wherein the two annular regions of relatively soft metal are displaced for each other along a longitudinal axis of the composite metal seal ring;

the first annular region of relatively soft metal has a thickness in the radial direction of at least one-eighth of an inch and the second annular region of relatively soft metal has a thickness in the radial direction of at least one-eighth of an inch;

the annular core of relatively hard metal is inlaid and overlaid with relatively soft metal of the first annular region of relatively soft metal and the annular core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the second annular region of relatively soft metal.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-4, 6, 8, 10-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe (US. 1,426,724) in view of Ogino et al (U.S. 5,651,494).

Fyffe discloses

a composite metal seal comprising a core of relatively hard metal (c) and at least one annular region of relatively soft metal (c) that is integrally with the core of relatively hard metal and that provides an annular sealing surface for effecting a fluid pressure seal;

the core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the annular region of relatively soft metal (figure 3);

the composite metal seal has a longitudinal axis, and the sealing surface is tapered with respect to the longitudinal axis;

Regarding claim 8, 10 and 13:

a composite metal seal ring (c and d) for effecting a fluid pressure seal with respective annular surfaces of first and second hub members (inside surfaces where a and b contact c). The composite metal seals ring comprising an annular core of relatively hard metal (c) and a first annular region (one of d) of relatively soft metal integrally to the annular core of relatively hard metal (c). A second annular region of relatively soft metal (second of d) bonded to the annular core of relatively hard metal. The first annular region of relatively soft metal having a first annular surface for mating (figure 3) with the annular surface of the first hub member to effect fluid pressure seal with the first hub member. The second annular region of relatively soft metal having a second annular surface for mating with the annular surface of the second hub member. The two annular regions of relatively soft metal are displaced from each other along a longitudinal axis of the composite metal seal ring (figure 3);

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the annular core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the first annular region of relatively soft metal. The annular core of relatively hard metal is inlaid and overlaid with the relatively soft metal of the second annular region of relatively soft metal;

the composite metal seal ring has a longitudinal axis (longitudinal axis parallel to the pipes g and j), the first annular region of relatively soft metal is tapered with respect to the longitudinal axis to have a varying radius that is smallest away from the second annular region of relatively soft metal and that is largest toward the second annular region of relatively soft metal. The second annular region of relatively soft metal is tapered with respect to the longitudinal axis to have a varying radius that is smallest away from the first annular region of relatively soft metal and that is largest toward the first annular region of relatively soft metal (figure 3);

the composite metal seal ring is a pressure energized seal and a compression seal (the fluid in the pipe g and j provide pressure to the seal and the compression of the seal is by f);

the composite metal seal ring has an internal diameter (figure 3);  
the composite metal seal ring is adapted to containing a pressure within the hubs (column 2, lines 63-66).

Fyffe fails to disclose that the hard and soft metals are integrally bonded together. Ogino discloses integrally bonding of hard metal to soft metal by welding. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the hard metal and soft metal of Fyffe to be welded as taught by Ogino to provide a bond between metals (column 1, lines 41-43).

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5. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe and Ogino.

Fyffe and Ogino disclose the claimed invention except for the thickness of the first and second annular region of relatively soft metal to be 1/8 of an inch. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the first and second annular region of relatively soft metal of Fyffe to have a thickness of 1/8 inch, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

6. Claims 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe and Ogino.

Fyffe and Ogino disclose the claimed invention except for the thickness of the first and second annular region of relatively soft metal to be 1/8 of an inch. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the first and second annular region of relatively soft metal of Fyffe and Bloom to have a thickness of 1/8 inch, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 5, 7, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe and Ogino and in further view of Poe (US. 4,563,025).

Fyffe and Ogino disclose the invention substantially as claimed above, but does not disclose the first annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the first annular region of relatively soft metal and the second annular region of relatively region soft metal has at least one annular groove in the

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neighborhood of the annular surface of the second annular region of relatively soft metal and the grooves are rectangular in cross-section and having walls that are perpendicular to the tapered annular surfaces of the first and second annular regions.

Poe disclose grooves on top of a deformable seal ring and the grooves are rectangular in cross-section and having walls that are perpendicular to tapered annular surfaces of the deformable seal ring (figure 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first and second annular region of relatively soft metal to have grooves as taught by Poe, to maintain the integrity of all radial compression to the ring and also to enable the ring to remain within the elastic limit of the seal ring material (abstract of Poe, lines 15-31).

8. Claim 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe and Ogino and in further view of Poe.

Fyffe and Ogino disclose the invention substantially as claimed above but fails to disclose the first annular region of relatively soft metal has at least one annular groove in the neighborhood of the annular surface of the first annular region of relatively soft metal and the second annular region of relatively region soft metal has at least one annular groove in the neighborhood of the annular surface of the second annular region of relatively soft metal and the grooves are rectangular in cross-section and having walls that are perpendicular to the tapered annular surfaces of the first and second annular regions.



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Poe disclose grooves on top of a deformable seal ring and the grooves are rectangular in cross-section and having walls that are perpendicular to tapered annular surfaces of the deformable seal ring (figure 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first and second annular region of relatively soft metal to have grooves as taught by Poe, to maintain the integrity of all radial compression to the ring and also to enable the ring to remain within the elastic limit of the seal ring material (abstract of Poe, lines 15-31).

9. Claims 23, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fyffe, Bloom and Poe.

Fyffe, Bloom and Poe disclose the claimed invention except for the composite metal seal ring is *adapted for containing pressure within the hubs of at least 10000 psi* or the composite metal seal ring has an internal diameter of at least 3 inches. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the composite metal seal ring of Fyffe to contain high pressure within the hubs of at least 10000 psi or to make the internal diameter of the composite metal seal ring of Fyffe to be at least 3 inches, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

#### ***Response to Arguments***

10. Applicant's arguments filed 2/20/01 have been fully considered but they are not persuasive. Argument concerning integrally bonded is not persuasive because integrally bonded interpreted broadly can mean that the hard and soft metal of the composite metal seal ring are

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held next to each other or are in contact. Argument concerning the bonding of the metal layers is not persuasive because Bloom teaches that two metal layers (a seal having metal layers 76 and 78 be bonded by welding, column 6, lines 17-23, lines 31-28, lines 51-53 and 60-63).

11. Applicant's arguments with respect to claim 1-26 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Culbertson et al, JP 56077086A and JP 09225652A.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is 703-308-8495. The examiner can normally be reached on 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-3687 for regular communications and 703-308-3687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.

VP  
November 28, 2001



**Anthony Knight**  
Supervisory Patent Examiner  
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